charged outdoors or into the chimney may be determined by houseliold construction. That it should not be allowed to carry its effluvia into the kitchen is certain. Owing to the position in which cooking ranges are usually placed, it would, us a general rule, be most convenient for the air to find its way into a flue to the chimney. But its finding exit there has no especial advantage, physically speaking, over the other mode of exit, for the movement of air at any season of the year, dependent upon the differences of density between the air outdoors and that in the oven, would always afford superabundant volume, to be regulated by the dimper, without adding to its updraught the great radiation up the chimney.

I have heretofore confined myself, as in duty bound, to the elucidation of the theme represented by the title of my paper. But it should not be inferred from my omitting discussion of anything beyond it, that I limit the good effect of the presence of ample oxygen in cooking to the preparation of meat for the table. On the contrary, I believe, as the result of observation, not experiment, that some vegetables, and therefore, I conclude, all, are so affected, and cook better in free air than elsewhere. In a qualified sense olservation, however, is experiment, where work is done to the hand of one who has not opportunity to do it for himself, but seizes it in observin $r$ effects casually offered by that of others, and then combines the facts in conclusions.

## A Vocabulary of the Nanticoke Dialect.

By Daniel G. Brinton, M. D.
(Read before the American Philosophical Society, Nov. 3, 1893.)
Among the valuable MSS. in the library of the American Philosophical Society is one, now a little over one hundred years old, which contains the only known vocabulary of any length of the Nanticoke dialect or language, once spoken in Maryland, on what is called the "Eastern shore," the region between Chesapeake bay and the Atlantic. Several requests have reached me from time to time to prepare this vocabulary for publication, and it seems to be a duty which the Society owes the republie of letters to make it available for purposes of study and comparison.

The vocabulary was collected at the request of a former President of this Society and of our country, Mr. Thomas Jefferson, by Mr. William Vans Murray, from an old woman called Mrs.

Mulberry, said to be the widow of the last chief of the Nanticokes. She at that time resided at Locust Neck town, Goose creek, Choctank river, Dorchester county, Maryland. The circumstances connected with obtaining the vocabulary are recounted in a letter from Mr. Murray to Mr. Jefferson, which is as follows:

## Letter from Mr. Murray to Mr. Jefeerson.

Dear Sir:-The enclosed little attempt to make a vocabulary of the language of the Nanticokes, may remind you of a circumstance, and promise of mine, which probably have escaped your memory. You gave me the printed list of words last spring. On the reverse of the printed side which is filled up, is added a number of words which occurred to me. The tribe has dwindled almost into extinction. It is still, however, possessed of five thousind acres of land which were reserved to them by the Assembly of Maryland in the first settlement of the Province. The little town where they live consists but of four genuine old wigwams, thatched over with the bark of the Celar-very old-and two framed houses-in one of which lives the queen, Mrs. Mulberry, relict of the Colonel who was the last Chief. They are not more than nine in number: The others of the tribe, which in this century was at least Five hundred in number, having died or removed towards the Frontiers, generally to the Six nations-perhaps by a comparison of the languages of them and of those a correspondence may be discovered. They went to the Senecas often-you will find they have no word for the personals he and she. They were much at a loss for all terms to express abstract ideas. It is a little surprising they had a word for Truth. They speak their language exclusively among themselves. A few years must totally extinguish the remains of this Tribe and it will be owing to you, Sir, if a trace is left of their language.
I have preferred the very list which I filled in a Wigwam to any neater copy-and therefore have chosen that to tramsmit to you.

I have the honour to be
Dear Sir with great
respect and attachment

> yr. mo. obt.,
w. V. Muribay.

Camimidel Dorset, E. S. Maryland, 18 September, 1703.

The Ionble Mr. Jeffehson.
Mr. Albert Gallatin has made use of this vocabulary in his Synopsis of the Indian Tribes of the United States, and from time to time others have borrowed from it; but no effort has been made to publish it in full.

The Nanticokes are first mentioned by Captain John Smith, who encountered them in 1608. Their subsequent history does not offer much of interest. I have traced it in sufficient detail in my publication, The l.enâpé and their Legends, pp. 22-25 (Philadelphia, 1885).

A note to the vocabulary states that their last " King," "the famous Wyniaco," died about seventy-five or eighty jears before (about 1712-15), and that "his body was preserved and very formally kept in a A wacason-house (Chio-ca-son house), seventy years dead," which means, I presume, for seventy years after his deatl. The preservation of the bones of their dead was a characteristic trait in the religion of the Nanticokes.

In publishing the vocabulary, I have thought it of interest to add comparative words from other dialects of the Algonkin stock, to illustrate Low thoroughly the Nanticoke belonged to it. With a few exceptions, every word collected by Mr. Murray is seen to be a slightly raried form of some expression in Lenâpé or other adjacent dialect. The exceptions would probably fall into the same category were the analysis prosecuted further.

I have also thought it desirable to arrange the words in alphabetical order, for convenience of reference.

The exclamation point, !, so frequently introduced by Mr. Murray, he explains to signify a peculiar, forcible, explosive enunciation of the syllable.

At the close of the vocabulary, the writer adds the following proper names :

We ning go mi usk, the personal name of Mrs. Mulberry, "Mulberry woman" (see below, Mulberry tree).

Ama namp quun, the name of the Indian town of Locust neek. Mall appenen, the name of the Nanticoke Indian town.

## Vocabulary of tie Nanticoke Dialect.

Abbreciations -Len., Lenâpé ; N. J., New Jersey Delawares ; N. Eng., New England Indians; Chip., Chipeway ; Pot., Potomacs ; II., Heckewelder's Nanticoke Vocab.; Sh., Shawnee.
Air, ayeroash; comp. wind, ewoesh; Ash, paw-kavque; Sh. mea-lawkuo.

Len. geschen.
Arm, nickpitq; Len. w'nachk.
Arrows, allontz; Len. alluns. Arrowhead, ik-ke-hek (sec
"Spear").

Autumn, wee-saro-panu (= veeswapanu, little or short light)
Axe, tummehek; Pot. tomalack; N. J. tomalickan.

Back, daduck.quack; N. J. huckun.
Back-creek, pomamato.
Back-woods, ah payio-wagh.
Bad, mattitt; Len. medlik.
Banks, lemoack-coi-um.
Basket, munnole; N. Eng. munnote.
Bear, winquipim.
Beard, nee-weeghtonizoall; Len. ni-toney, my beard; N. J. nituuna.
Beaver, nataque; N. J. nakuee, or tomoque.
Beech, pall!-scanemintz; Len. schauweminshi, red beech-tree.
Bees, aamook; Len. amoe.
Belly, nut-ah! Len. nachtey (my).
Belt, uckq-shit lawk; Len. ochquasu (belt of wampum).
To bend, ne wavk-kaw quin.nimon; Chip. nin woukinan.
Berry, mee-eents; Len. mintschi.
Bed, dapp-in.
Bird, piss-seeques ; Chip. binessi.
Bitter, wee-suck un.
Black, orsliag.u; uschkeju H ; Len. sucken.
Blackberry, munck-qui.suck; Len. min, berry ; sucken, black.
Blackbircl, husquinock.
Blood, puck-cuchque; N. J. mohoock.
Blue, pul-squai-loau; Cree sipikkwoav; N. Eng. peshaùi.
Body, no.waw.auh; N. J. uatuhaape.
IBone, whis-scan; Len. wochgun; N. J. okuaan.

Bone-house, man-to-kump (house to put the bones of the dead into). Probably "sacred place," from Lenl. manito, god, sacred.
A bow, kullahlow.
Boy, wouhocki-a-wauntit; N. J. penaetit.
Brave, matt whece-8aro-80 (= not cowardly).

Bread, app!ow; Len. n'dapponhe, I make hread; N. J. apoon.
To break, ne poick-shitt-own ; Len. poquihillen, it is broken ; N. Eng. pokeshattouvin.
Broad, manckapah-saiu; Len. amangi, large.
Brother. ne.ee-mat; Len. ni'mat, my brother.
Bubby, noo-naque, i.e., the mamma; Len. nunugan (my.)
Buck, i-e-ape; Len. ajapen.
Butterfly, aumaun-co hunt; N. J. amookas.

Cedar, weensquaaquah.
Cliannel, an-da-timp.
Chesnut-tree, eh! qua-mintz.
Chis, unt-tampquet ; Chip. o'dami. kan (his).
Child, awauntet ; Len. wo unit (his).
Cloud, matchkatquot ; ichemuckqh H.; Len. machtaquoll ; N. J. kumhaak.
Cold, tagh!quiow; Len. t'heu; N. J. taa.

Cowardly, wee sauc.so ak (s e e "Brave").
Crab, tah!quah; Len. scháhamuis.
Crane, alu!secque.
Crcek, pamptuckquaskque (see "River").
Crow, kuh!-hos; Len. ahas.
Cry, to, num-moam; Len. ganschalamuim.

Dance, to, zdocumb.
Dıy, a, nucotucquon; kisucku II.; Len. gischgu.

Day-break, rowopaney; keesequo, II.; Len. gisch-apan.

Darkness, samp.oo-somow (radical, pös; = Len. pis.geu, it is dark).
Daughter, hun tavon; Len. • wotion (his) ; N. J. daan-us.

Dead, place for the, mutz-uckzumpq (the place where the dead are deposited).
Death, ungue-lack; H. evoeeshawaak angel; Len. ehángelükgīk, they are dead ; N. J. nongiil.
Deep, timmoh; Chip. dimi.
Deer, attque, youcat (four legs); Len. achtu; N. J. aatu.
Devil, matt-ann-tote; Len. machtando.
Dew, quesuppost ; N. J. sussuuskui.
Distance, roah!sow et.
Doe, noose-at-q; Len. nunsel-etto.
Dog, al!um, H.; Len. allum.
Dogwood, ah!laarohunnimints; Len. hattawano minschi.
Dove, weetah-tomps; Sh. po-weatha.
Drink, to, minnih; Len. mene.
Dry, kow-kitt-ow-a.
Duck, quah!quamps (imitative?) ; N. J. quing-quinq.

Eagle, ah!whap-pawn-top.
Ear, nuch-tow.huck (my); Len. woitturoak (his); N. J. nituuk.
Earth, ahkee; Len. hacki; N. J. haakke.
Eat, to, meetsee; Len. mizu, he eats ; N. J. miitshe.
Eel, pall!in.
Egg, waawoh (with a whiff) ; Len. wahhroall, pl.
Evening, weaku; Len. woulaku.
Eye, nucks-skenceqūah (my); Len. w'uschginquall, his eyes; N. J. uiiskingul.

Face, assung-gui; Len. wo'uschgink, his face (comp. "Eye") ; N. J. uiisking.
Fall, to, ah-kinnitsish; Len. meschiechīn.
Falsehood, e.kitt-co. .
Far, wachschuit ; Chip. wassa.
Fat, pim; Len. pomi.

Father, nowoze (my) ; Len. n'och; N. J. nukuaa.

Fear, quischr-asch, H.; Len. wis. chasi.
Finger, na-mishah!qu-ulgamz.
Fire, tunt; Len. tindey; N. J. taande.
Fish, wammass; Len. namees.
Fly, a, pootzah; Len. utsche; N. J. sa-kiime.
Fog, howewen; auroan, H.; Len. aroan ; N. J. auan.
Food, mettsah (comp. "Eat, to").
Foolish, cuip-shee-in quo; Len. gubtocha; N. J. kipitsheoote.
Foot, nist (my) ; Len. uchsit.
Fox, waaks; Len. woacus.
Frog, clacqu-iss ; Cree ayekis.
Frost, togh!poh! Len. topan; N. J. tuupan; N. Eng. taquattin.

Girl, pukquah ; Len. ochquetsch.
God, mann!-itt; Len. manitto.
Good, wee-ee; watti-e.u; Len. zoulit.
Grass, mass-que-quise; Len. mas. gik; N. J. muskiikul.
Grave, wawoskowko; Len. pokaven, a hole.
Green, ah!skaah-tuck-qui-a; Len. asken.
Gum, pook-sacq-in-ment.
Guts, walah-kiss-sisk.
Hail, alh!sinlipwo (assin, stone); N. J. sidonivia.

Hair, nee-eesquat; Cree w'estakaya.
Hand, nut untz ; N. J. nacking.
Hard, mais-kai-u; Chip. mashkawissin, it is hard.
Hare, a, timiharoque.
Hate, to, ne man-nin-novo.
Hawk, mah!squallen.
Head, neelahammon; Len. w'il, his head; N. J. woheel.

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Hear, to, no-oan-tum; N. J. ni-indam.
Heart, wea!scheu, II. (his); Len. w'dee.
Heat, nip(ow)kiss, from Alg. nibin, summer.
Hickory-tree, psee.cun.
High, wha-scu-neep-ai-u; schpmm. mend, H. ;Chip. ischpamagad, it is high.
Hill, lemuckquickise; Len. welemuckqueck.
Hot, app et-taav! Cree abweyaro.
House, youck-huck; iahach, H.; Len. wik; Pot. ye hawkins.
Husband, nups-soh!'soh! (my).
I, nee; Len. ni.
Ice, hah!laggu-quutz; Len. m'hocquami; N. J. hukkooen.

Joy, ne moo ye-oro-rcass.
Jump, to, ni-s poicksh, I jump; Len. ni-poaktsch.

Kill, to, nepoickt-tow; Alg. root, nipa.
King, tall!ak; N. J. qualis, master, from Len. allokakusin, to have power over another, from allowat, strong.

Large, mang-ai-u; Len. amangi.
Laugh, to, wei ailu-e mitt-a-ha; Len. wehemoaluk, he laughs.
Lean, moosow rak; Chip. asoroa.
Leg, much-cat; Len. w'ickaut (his).
Lie down, 10 , cow.si-nee.
Life, ne quee quaanack; Pot. keknyh.
Light, wassaquitayzo; Len. waché. jer.
Lightuing, ton-que-ah.
Lip, nussilecque.
Likiard, ohl-kituah-kiss; Len. ge. gichxiis.
Locust-iree, kilt-one-nutq.

Long, quah!!nah!!! qut; Len. guna, quoanager.
Love, to, n!wummoi; quammosch, H.; N. Eng. coroammaunsch, I love you.
Low, tah!quah!quah!-su; Len. tachpachsu.

Maize, carcl-na-rcoop.
Man, wohacki; naup, H ; Len. lennäpe.
Maple tree, waro-see-ke-me; Len. schicchikiminshi.
Marsh, nah!squuh! Len. masge$k u$-voici.
Mocking-bird, almittonqha.
Mat, a, yaroskg.
Meat, pumantah (hog's meat).
Milk, noo-oo-nack.
Mole, alomob-schkim-nitz.
Month, a, nuquoluc quaquoa.
Moon, atupquonihanque; Len. tpocuniwoi gischuch (night sun).
Morning, wesclıpa 11 ; from Len. gisclıgu, day.
Mother, nicque; Chip. ninge; N. J. onna.
Mountain, pomat-tinike; pemettenaichk, H.; from Alg . root $\bar{a} m a t$, to mount up.
Month, huntowocy; mettoon, H.; Len. wo'toon (his).
Mud, piss-sucqua; Len. assiscu.
Mulberry-tree, qohic-in-guaque; Len. mint quaqui.
Muskrut, wenk-keh! Chip. wachashk.
Nuils (finger), muck can sump; Len. nëchgusch.
Narrow, tsipnis-u.
Near, pechtschtschu, H. ; Len. pechhutschi.
Neck, nissi-kip-puchqh! N. Eng. wilchipuck.
Now, whuis-kiti.u; N. J. uiiskisu ( $\mathrm{y}^{\text {oung }}$ )

Night, toopquow; tuppucku; Len. tpoku; N. J. tipaake.
No, mattah! Len. matta.
Nose, nick-kee-u (my); Len. w'ickiwon (his) ; N. J. uikiiko.

Oak, wee-seek-e-mintz ; Len. wisachgak.
Old, kutt-a-nai-u; Cree ketteyatisu, he is old.
Opossum, nall'simini.
Owl, quäo-waant; Chip. koko.
Oysters, kaw-sheh!
Oyster-shells, tsee-ko-mack.
Partridge, kittycarondipqua.
Peas, pee woahlsh.quist.
Peace, e-wee-ne-tu; Chip. inazeendiouin; N. Eng. aquène.
Pheasant, uh!quas capitz.
Perch, kosh-kike nesuc.
Persimmon-tree, lawo wacq (see "Mints").
Pigeon, not siminasuk.
Pine tree, quaat ; Len. curce.
Point of land, alla-maa-wampl.
Polc-cat, tzuckquaakq; N. J. skuaak.
Pond, nippiss (nip, water).
Poplar-tree, wee-saa-quack.
Pretty, weee-e-eat.
Queen, talla!kesk (see "King")
Raccoon, anasup; Len. espanni; N. J. nahanuun.

Rain, winieovo; sokelan, H.; Len. sokelangetsch, when it rains; N. J. suuklan.

Rainbow, quenuck-quenuck; N. J. monukooen.
Rattlesnake, eehlseekq; Chip. jishigue; N. Eng. sesek.
Raven, uckquak.
Red, psquai-u; N. Eng. msqùu.
Red-bird, pishquiss eeps.

Religion, Lapp!-poi o-wees; probably "a coming together," from Len. lappi-lenin.
River, pamptuckqualh'; peemtuck, H.; Len. kikhit-tuck; Chip. pīm, to flow.
Rock, koshcup; Chip. kischcab, a perpendicular rock.
Kun, to, un-to mho waish.
Salt, tzee-e.oose ; Len. sīkey.
Sand, loh!-ki; Len. lékau.
Sea, mank-nippint ; kittahend, II. . N. J. kilhittuun.

See, to, naa-m-m; Len. nemen; N. J. ni-naaman.

Shark, witt-ameek; Len. ameck. fish.
Shallow, tacq-e-timps oh.
Shame, katt-ak-katts.
Shocs, meckhisisins ; Pot. mockasins ; C. maskisins.

Shore, saumps-a-mu.
Sick, huntoi-miss ; Chip. nin nanipinio, I am sick.
Side, pomeetempquat.
Sing, to, nuck-und-oh; Len. nachgohomān.
Sister, older, nimpz ; Chip. nimisse.
Sister, younger, neighsum; Chip. nishime.
Sit, to, qui-ah quup.
Skin, noxas-sium.
Sky, moosecaquit ; Len. moschhac ; N. J. musheek.

Sleep, to, n-upp; Chip. nıpa.
Small, lamaisu ; namahchtschu, H.; Chip. maskig.
Smell, to, ne quees-sum-un.
Smoke, niponguōt-tai (I smoke); Chip. nin pashkinawe.
Smoke, to smoke a pipe, $p$-simoi.
Snake, ash-quoke; Len. achgook.
Snakeroot, pahl/scho-hook-quick; Len. blĕu-lòtīk.
Snakebite, ahlsckok-kas sipehoke.

Snow, qūoono ; gu'no, H.; Len. This, that, you-kan-nah; Len. guhn; N. J. uiina.
Soft, patt-ah-ki-u; Len. w'tàcku; N. J. taakke.

Son, nucks.quah (my) ; Len. quissall (his).
Sorry, dah-qua-a-nee (I am sorry).
Sour, tchee-ee-voun; Len. schwon.
Speak, to, ne kitt-o-was ; N. J. giテ̇ï̀u.
Spear, ne poikee-hek (see "Arrowhead ").
Soul, tsee-e-p; Len. tschipey.
Spring, the, see-qui no; Len. siquon; N. J. sick-quim.

Spring, a, möōnip-pque (nip, Tree, petuicque; pauk, H.; Chip. water).
Squirrel, mowok-key; N. J. houneek.
Squirrel, Hying, ah!sappaneques; ground squirrel, muck quissah.
Stand, to, dogh-kinch; Len. pachsucquin.
Star, poomolasuque; Pot. pumma. hump.
Stone, a, kauoscup (see "Rock").
Straight, lemat-tah'-quot.
Strike, to, ne pack-come; Len. po-pachgan-damen, to strike dead.
Strong, miss-ki-u; Cree maskavisiu.
Summer, mashaquapau-u; mech. schak roapan, H. ( $=$ the great or long light).
Sun, ah-quak; aquequaque; aequechkkq, H.; Len. gischuch; N. J. kiizku.
Sweet, wee-ing-on; Len. wingan.
Sweat, nip-oo-kiss.
There, ennuk, II.
Thick, kee.puck-an; Len. cubbach. can.
Thigh, hunts-sunque.
'Thín, ah.8hee-penz.o; Len. voscháb. ban.
nanni.
Thou, kee; Len. ki.
Thunder, avoah!-shuck; Len. pedhakquon, it thunders; N. J. patihaakun.
Tobacco, oh'pucque; N. Eng. puck.
To-day, ewaparogup.
Toe, nicks-see-equanumps (my) ( $=$ my foot, $i k s i t$ ).
To-morrow, allappahvsee.
Tongue, neeannow-ah! (my) ; Len. w'ilano (his).
Tooth, neeput-tumps (my); Len. w'ipit (his) ; N. J. uipiitil. pak.
Truth, ko-o-lam; Len. leke, true ; woulam, true.
Turkey, pah!quun; Len. bloeu; N. J. tschikuuna.

Turkey-buzzard, moh waas.
Ugly, matt-it (= bad).
Valley, qualliquawkimuck; pechsechkamikat, II.; Len. puchsajeek.
Vine, a, mallaw cominamintz.
Viper, apo-tass-sces-a.
Walnut-tree, ah!sin-ni-mintz (from assin, stone).
Walk, to, n-gutt-o-2oas.
War, matt-ah-kass-on; Len. machtágeen.
Warrior, matt-ah-ki-ween (see "War").
Water, nip; Len. $n^{\prime} b i$; N. J. bee; Alg. nipi.
Wet, kiss-ep pai-u; Len. niskpeu.
Whistle, to, ne queczkso-uh-quitt-um; Len. ni quischktoonheen.
White, voaup-pay-u; Len. voapsu; N. J. opeck.

Whore, amattz-e-no.
Wild-cht, lat !roaa!quepuss; N . Eng. pussoro.

Wild goose, quà-hāv-quunt.
Winding, apaas.suc-tucqut.
Winter, pooponu ; iluppoon, H. ; C. pipon; N. Eng. popon.
Wife, nee-eeswah! (lit. " my woman'").
Wise, wee-sauce.
Woman, acquahique; aquahoag, H. ; Len. ochqueu.

Wood, meeh-shiz; michsez, Len. minschi ; Pot. musses.

1, nukquit.
2, na-eez.
3, nis (whu).
4, yaguh (w/uu).
5, nup-pai-a.
6, noqūttah.
7, my-yay-wah.
8, tzal.
9, passa-conque.
10, millah!
11, ah!tzickquit.
12, ahtz-naeez.
13, ahtz-whhus.
14, ahtz-yough.
15, ahtzup-pay-ah.
16, ahtzaquutah.
17, ahtz mayaway.

Woods, pamp tuck-koisk; Len. tékene; Sh. teikou.

Year, a, nuquolacutquomai (see "Month").
Yes, $a$-a-mch!
Yesterday, holacquoio.
Yellow, wee-sa-way-u ; Len. wisawou.
H.; You, kee (= thou).

Young, laimaisu (see "Small'").
18, ahtz-wah.
19, altz-passa, conque.
20, nec-es-mitlah.
21, neequa-nichquit.
30, su-pooks-kay.
40, yov-pookay.
50, nuppay-e poosquak.
60, nequttak-e poosquah.
70, may-ah-woa-e poosquah.
80, tzav-e poosquah.
90, passaconque-e poosquah.
100, weemba kissana.
200, neesa kissana.
300, nuisswa kissana.
400, you-wah!kissana.
500, nuppaia tashakissana.
1000, muttak-taska kissana.

Second Addition to the Knovoledge of the Batrachia and Reptilia of Costa Rica.

By E. D. Cope.
(Read before the American Plilosophical Society, November 17, 1893.)
The present paper is a second supplement to a memoir on the Batrachia and Reptilia of Costa Rica, published by myself, in the Journal of the Academy of Natural Sciences of Fhiladelplia, for 1875, p. 93. The first supplement is a brief one, and was published in the Proceedings of the American Philosophical Society, 1879, p. 271. The whole number of species enumerated up to the latter date was one hundred and thirty-three.

The present supplement is based on material which I have received from my friend, Mr. George K. Cherrie, who is an officer of the Museo

